

WHAT IS CLAIMED IS:

1. A fixing apparatus comprising:

a heating member including at least a conductor;

a induction heating coil comprising first and

5 second coils:

a first resonant circuit including the first coil  
as a structural element;

a second resonant circuit including the second  
coil as a structural element; and

10 a driving circuit for driving the first and second  
resonant circuits at a plurality of frequencies,

wherein the first and second resonant circuits  
have different resonance frequencies.

2. An apparatus according to claim 1, wherein an  
15 output of the first coil is greater than an output of  
the second coil when the first and second coils are  
driven at a first frequency included in the plurality  
of frequencies, and the output of the second coil is  
greater than the output of the first coil when the  
20 first and second coils are driven at a second frequency  
different from the first frequency.

3. An apparatus according to claim 1, wherein the  
first and second resonant circuits are formed as a  
single circuit.

25 4. An apparatus according to claim 1, wherein the  
first coil is located in a position corresponding to a  
substantially center portion of the heating member in

the axial direction thereof, and the second coil is located in positions corresponding to both end portions of the heating member in the axial direction thereof.

5        5. An apparatus according to claim 2, wherein a total of the outputs of the first and second coils remains unchanged even when the first and second frequencies are changed by the driving circuit.

10        6. An apparatus according to claim 2, which further comprises a controller configured to control the driving circuit, and wherein the controller has at least (a) a mode in which when a paper sheet having a width substantially equal to a width of the first coil in a longitudinal direction of the heating member is fed to the fixing apparatus, the driving circuit  
15        performs driving at the first frequency, and (b) a mode in which when a paper sheet having a width greater than the width of the first coil in the longitudinal direction of the heating member is fed to the fixing apparatus, the driving circuit alternately uses the  
20        first and second frequencies to alternatively drive the first and second resonant circuits.

25        7. An apparatus according to claim 2, wherein the first and second resonant circuits are set such that the output of the first coil at time of driving the first coil at the second frequency is greater than the output of the second coil at time of driving the second coil at the first frequency.

8. An apparatus according to claim 1, further comprising a pressure member which is rotatable along with the heating member while being in pressure-contact with the heating member.

5           9. An apparatus according to claim 1, wherein the first and second resonant circuits have frequency-output characteristics in which half-widths of the first and second resonant circuits are equal to each other.

10           10. An apparatus according to claim 2, wherein the first frequency is different from a resonance frequency of the first resonant circuit by  $\Delta f$ .

15           11. An apparatus according to claim 2, wherein the second frequency is different from a resonance frequency of the second resonant circuit by  $\Delta f$ .

12. An apparatus according to claim 2, wherein the outputs of the first and second coils have the following relationship:

$$A:B \neq D:C$$

20           where A is the output of the first coil at time of driving the first coil at the first frequency, B is the output of the second coil at time of driving the second coil of the second coil at the first frequency, C is the output of the first coil at time of driving the  
25           first coil at the second frequency, and D is the output of the second coil at time of driving the second coil at the second frequency.

13. A fixing apparatus comprising:

a heating member including at least a conductor;

a induction heating coil comprising first and second coils;

5 a first resonant circuit having a first resonance frequency and including the first coil as a structural element;

a second resonant circuit having a second frequency different from the first frequency and including the second coil as a structural element; and

10 a driving circuit configured to drive the first and second resonant circuits at a plurality of frequencies; and

a controller configured to control the driving circuit,

15 wherein the controller has at least (a) a mode wherein when a paper sheet having a width substantially equal to a width of the first coil which is measured in a longitudinal direction of the heating member is fed to the fixing apparatus, the driving circuit drives the first and second resonant circuits at the first frequency, and (b) a mode wherein when a paper sheet having a width greater than the width of the first coil in the longitudinal direction of the heating member is fed to the fixing apparatus, the driving circuits alternately uses the first and second frequencies to alternatively drive the first and second resonant

circuits.

14. An apparatus according to claim 13, wherein  
the first and second resonant circuits are set such  
that the output of the first coil at time of driving  
5 the first coil at the second frequency is greater than  
the output of the second coil at time of driving the  
second coil at the first frequency.

15. An apparatus according to claim 13, wherein  
the first and second resonant circuits have frequency-  
10 output characteristics in which half-widths of the  
first and second resonant circuits are equal to each  
other.

16. An apparatus according to claim 13, wherein  
the first frequency is different from a resonance  
15 frequency of the first resonant circuit by  $\Delta f$ .

17. An apparatus according to claim 13, wherein  
the second frequency is different from a resonance  
frequency of the second resonant circuit by  $\Delta f$ .